REMARKS

This amendment is being filed in response to a Notice of Non-Compliant Amendment dated September 23, 2005. Specifically, in a non-final amendment filed on June 22, 2005, the amendments to claim 8 were not clearly indicated. Changes to claim 8 are correctly identified herewith. All other claims and the following remarks were submitted previously in the present form.

Claims 1-9 and 11-14 are pending in the application. Claims 1, 5, 8, 11 and 12 have been amended and claim 10 has been canceled by the foregoing amendment.

Claims 1-14 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,104,713 ("Nagami"). Applicant requests traversal of these rejections and allowance of the pending claims in view of the following remarks.

Applicants' invention is directed to a method for controlling the order of datagrams being processed by at least one processing engine. As recited in amended claim 1 for example, the at least one processing engine includes at least one input port and at least one output port, wherein each datagram or each group of datagrams has a ticket associated therewith by a ticket dispenser. Processors in the processing engine, once they become available, interrogate the ticket dispenser to take the next ticket and use it to control the order of the datagram or group of datagrams at the at least one input port of the processing engine and at the at least one output port of the processing engine.

Nagami describes a datagram router system. As described by Nagami (col. 14 and Fig. 3), a stream of incoming datagrams are analyzed (datagram analysis unit 1) by using a "key"

(such as destination, QoS or source address data) with a table (2) to determine which output I/F (e.g. atm1) and which virtual connection oriented LAN 41 (e.g. virtual connection identifier 1) are appropriate for that particular datagram. Transmission unit 4 of the appropriate I/F assembles ATM cells and outputs them to the *virtual connection with a virtual connection identifier '1' in the virtual connection oriented LAN*. The cells are sent to the connection associated with identifier '1' rather than a code representing the connection being inserted into the ATM cells. Nagami also seems to suggest (col. 17, lines 1-5) that the specified output connection identifier is attached to the ATM cells. However, this is not a "ticket" in the sense used in the present invention but an address element of the re-constructed header of the incoming datagram. Nagami fails to disclose the use of a ticket as described and claimed in Applicant's invention.

Nagami describes a routing process in which datagram cells "hop" from one node to another by a succession of datagram analysis stages. In each stage, a comparison is made with data stored in a table to determine the next hop in the series. The routing process at any stage is initiated by the arrival of a datagram at the input of that stage. Therefore, a processor performing the table comparison and the consequential routing operation awaits the arrival of the datagram stream and processes successive datagrams in strict arrival sequence. The routing process of Nagami is a "passive" process.

Applicant's invention describes an improvement over previous "deli-counter" algorithms. Utilizing the parlance of deli-counters, prior algorithms traditionally operate by an incoming datagram being allocated a ticket to indicate that the incoming datagram is the next one to be

"served" (i.e. processed). This incoming datagram, however, has to wait until an "assistant" (i.e. a processor) is available to serve it. The ticket indicates to the processor that the datagram is next in line. No such operation occurs in Nagami. The virtual connect identifiers in Nagami indicate a forwarding addresses for the datagrams and do not indicate their position in the incoming queue. The identifiers are used as keys to look up the next address in a table for that stage. The order in which datagrams are output is only controlled in Nagami when the look-up table contains data related to QoS. The QoS data may dictate that a datagram has priority over another, requiring the datagram order to be altered by schedulers from a strictly first come, first served protocol (col. 21, lines 42 + of Nagami).

In contrast, Applicant's invention uses a proactive approach. Once a processor becomes available from a previous task, the processor interrogates a ticket allocator (or, dispenser) to take the next ticket associated with a datagram in the incoming queue, thereby to perform an operation of some kind on the datagram to which that ticket relates. The datagram processed by that particular processor may not necessarily be the next datagram in the original numerical sequence since other processors may have taken other tickets in the queue beforehand, depending on the time taken by each processor to perform its operation on the respective datagram. This process is described in Applicant's invention (p. 9, lines 35 - 42). A new processor can join the algorithm operating the present method by simply taking a ticket (p. 8, lines 44 - 47) or a processor can drop out by not interrogating the dispenser.

Applicant's invention increases efficiency and utilization of multiple processors in one or more engines. As opposed to an available processor having to wait to be given a ticket and

therefore a data item to process, the method of Applicant's invention actively seeks out a data item. The idle time is negligible in comparison with known deli-counter algorithms. To highlight the distinction, the ticket is sought out by the processor as opposed to the ticket being assigned to the data item. As described by Applicant (pp. 8 and 9, steps 1-10), the first step is where the processor takes a ticket. This is achieved by interrogating the dispenser, once the processor has become available, to obtain the next available ticket. The processor returns the ticket to the dispenser in step 2 and reads in a datagram from the source. It is quite immaterial as to which processor operates on which datagram(s). In conventional systems, on the other hand, the processor engine requires global knowledge of which datagram is assigned to which processor.

Nagami does not operate a deli-counter algorithm, nor does it describe the use of allocated tickets in the manned described and claimed in Applicant's invention.

Independent claims 1, 5 and 8 have been amended in order to further highlight the novel aspects of Applicant's invention described. As recited in claim 1, the method of Applicant's invention specifies that processors, once they have become available, interrogate a ticket dispenser so as to take a ticket and use it to control the order of datagrams or groups of datagrams at the input port and at the output port. It is immaterial whether the processors in question are from a single, multi-processor engine, whether they are single processors in a multiple processing engine or even a combination of the two. The principle of operation remains the same in each case. Claims 5 and 8 have been amended in a similar manner. Claim 10 has been canceled as claims 1, 5 and 8 have been amended to incorporate the use of ticket dispenser.

Nagami fails to disclose Applicants' invention as claimed nor does Nagami make Applicants' invention obvious. At least for these reasons, it is believed that amended claim 1 is allowable. Claims 5 and 8 have been amended similarly. Therefore, these claims are also allowable.

The remaining claims (i.e. claims 2-4, 6, 7, 9 and 11-14), all of which depend on one of allowable independent claims 1, 5 and 8, are also allowable.

All of the rejections having been overcome, it is believed that this application is in condition for allowance and a notice to that effect is earnestly solicited. Should the Examiner have any questions with respect to expediting the prosecution of this application, she is urged to contact the undersigned at the number listed below.

Respectfully submitted,

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Date: September 26, 2005